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PSYCHOLOGY AND SCIENTIFIC METHODS

DUALISM AND EARLY MODERN PHILOSOPHY. II

THIS lengthy excursus into Thomistic doctrine was for the purpose of giving full exemplification of the interweaving of the influences whose history is being sketched. For the remainder of the paper there remains only the description of certain larger transformations. First of all it is necessary to consider a new set of ideas that begin to work in the scholastic scheme and force the precipitation therefrom of an unambiguous dualism. This set of ideas is that which defines and inspires the new sciences of nature.

The scientific movement removed forms and species from nature—this was its first step, for the exclusion of qualitative determinations from nature was the necessary preliminary to the revelation of nature as a mechanical material system. The term matter, which for centuries had possessed in the main its Aristotelian meanings, receives now a new set of implications. The positive side of the process has many aspects: The revival of atomism, and the development of the corpuscular theory; the revival of ancient skepticism, which prejudices the magisterial rights of metaphysics and theology over nature, and, assisted by nominalism, encourages the empirical tendency and heartens experimental inquiry; and in general the individualistic spirit gave spontaneity and independence to thought. The influence of mathematics was enormous. Quantity had been only an accident of things, since it was variable with respect to the individualized forms; it now became the chief feature of matter, its very essence. As soon as matter is stripped of forms, it appears as a realm free for mathematical exploitation. The more successful the application of mathematics to matter, the more definite became the new meanings and implications of the term matter, the more completely was it released from its Aristotelian connotations, and the more objectionable became the older notions concerning inner forms and occult qualities. Nature is revealed as a mechanical system, and mechanics becomes the mathematical theory of nature.

What effect did these changes have upon the dualistic conceptions of tradition? Evidently a sharpening and accentuation of the dual-

istic ideas must occur, with profound effects upon psychological and epistemological theory.

Substances had been things, qualitatively distinct, hierarchically arranged, the series ranging from the actual things of the perceptual world, inanimate and animate things, through persons and angels to God. We have seen that conceptual instruments bequeathed by Aristotle had not sufficed to devise a psychology, or ontology, or theology without points of cleavage and instances of discontinuity. Ideas springing from the emotional attitudes that characterized the growing world-outlook of the period after Aristotle conflicted with the proper utilization of the peripatetic concepts, or suffused them with alien meanings. The serially ordered system of substances always tended to split in two, the point of weakness being the rational human soul. Now when nature comes to be conceived mechanically, and matter becomes quantitatively defined, forms are excluded from nature and matter. Nature thus became one substance, in place of being many. Form and matter are completely separated. But the concept of form had received more and more the quality of spirituality. The hierarchical order, already weakened, collapses under the impact of the new conception of nature. If nature becomes one substance, so the whole system of forms must come to form one substance. The distinction between spiritual and corporeal substances was already at hand. Corporeality now means materiality, with no reference to form whatever. There is but one refuge for forms, namely, as modes or aspects of spiritual substance. There had always existed a certain kinship, psychologically, ethically, and theologically, between the immortal rational principle in man and the nature of angels and God. It was easy to group these together as partaking of the same substantial nature; they were incorruptible, they were immaterial (form), they were spiritual, and thinking was their peculiar power and act. The way was plain; all were spiritual in substance. The ontological dualism must follow. The concepts of form, of the extra-corporeal status of reason, and of spiritual creature had become the vehicles for the establishment of religious values; the retirement upon the concept of spiritual substance, defined as the antithesis of matter, as the basis of these ideas, preserved these values from annihilation by assuring escape from mechanics and its category of quantity.

As the tendency to envisage the world of nature as a system resting upon mechanical principles grew stronger, accordingly, thinking things no longer form the apex of the qualitative ladder of actualities, energies, and realizations. They became substantially homogeneous The concept of substance is retained, but its older common-sense context which gave it significance was removed. In place of the

former arrangement we have the extreme contrast of thought to things, with nature as the object of knowledge. Now with this concentration of a graded plurality of substances into the antithetical two there occurs a change in the leading categories. As nature, stripped bare of its masque of secondary and tertiary qualities, was progressively revealed as a machine, obeying inviolable laws capable of mathematical formulation, the irrelevance of formal and final causes is emphasized. This does not involve the complete disuse of formal and final causes, but only their inapplicability to nature. They are relegated to metaphysics. Mechanism and teleology are discerned as conflicting planes of interpretation and the conflict yields its full quota of problems.

The place of formal and final causes is taken by efficient causes, motion, impact, and the like. The older regulating conceptions, potentiality and actuality, were laid aside by the new science. Quantitative determinations become all-important. Furthermore, the interaction between substances, generally taken for granted whether explicable or not, persists in the new setting, and mind and matter are supposed to interact. Just how this took place was, perhaps, regarded as more or less of a mystery. Its mysteriousness did not constitute a problem until other issues connected with the dualism were made explicit.

This transformation inevitably wrought a change in epistemology and psychology, bringing forth new problems or momentous alterations in old ones. The matter can be given a general outline in the following way:

In terms of the orthodox scholastic conceptions, mind, and therefore knowing and knowledge, are the final realization of matter. Beneath the profusion of scholastic distinctions and verbiage this was the basic thought. Now with the surrender of the hierarchical ordering regulated by the concepts of potentiality and actuality, the sphere of existence is divided into two substances. The genuineness of knowledge of things had rested upon the correspondence of the species of thought to the generic forms of things. Perhaps a satisfactory explanation of this was not given; in one sense no explanation was needed just because knowing was the realization of the potentialities of matter. At any rate, with the telescoping of all substances into two, the correspondence or copy theory of knowledge persists. The knowing went on in an immaterial knower, intellect being pure form, and its means of knowing possessed the ideality of form. Now so long as the matter-form-potentiality-actuality scheme was maintained, the immateriality of knower and the knower's means of knowledge presented no obstacle. But when the knowing takes place in a spiritual substance unqualifiedly antithetical to the sub-

stance and nature of the things known, and the veracity of alleged knowledge is supposed to be tested by the correspondence of the mode of one substance to that of the other, the knowledge problem is set in dualistic terms; and the immateriality of the knower and correspondence as the test give birth to problems. Forms had been expelled from nature: the only "forms" remaining were geometrical, the configurations of bodies or extended substance. The *old* forms are all in the spiritual substance, and the term idea, hitherto mainly confined to denote that which the deity understands, comes to be applied to them. The possession of form by everything had hitherto provided a bond of kinship guaranteeing continuity between natural things and the knowing soul. But while formerly everything was both matter and form, now nothing is, or can be, both. The rupture is complete. If the old terms are to be used again, they must be provided with new meanings. In that case the ancient "matter" means *form as geometrical,* that is, configurations in extension, and these are the object of knowledge. Descartes's statement that "the infinitude of figures suffices to express all the differences in sensible things" expresses this.[1]

On this basis the question of the nature of the correspondence required for knowledge becomes acute. What sort of correspondence exists between a mode of spiritual substance, which is that which cognizes, and a mode of extended substance, which is that which is cognized? In its orthodox connection the correspondence was based on the maxim that like is known by like. But this maxim is gone beyond redemption when the knowledge problem is set in dualistic terms (however long it might take for this to be recognized), for by definition there is no resemblance whatever between the modes of the two substances. In time the correspondence is changed to a correlation, but the inherent difficulties remain.

Laying aside the epistemological aspect of the situation, let us consider the status of psychology. The orthodox scholastic psychology was hardly troubled by the differences between body and the rational soul. In one sense there had been no problem of the relation of body and soul, for everything necessarily possessed both matter and form. To inquire how a material thing could be animated by an immaterial form would have been a senseless question to the peripatetic scholastic—it was unthinkable that a living material body, or any body whatever, should be without form. That the soul, as a separate and separable form, should be united to a perishable body was just what was demanded by the teleological constitution of the world. But when the ontological dualism forces a mind-body dualism, the relation of body and soul was something of which psychology

[1] Rule 12 of the *Rules for the Direction of the Mind.*

must take account. And especially is this true when advance is made in physiological knowledge. The contrast between the rational soul and the other powers was never satisfactorily dealt with; the doctrine made the mind-body dualism all the more acceptable.

The intellectualistic psychology, such as that of St. Thomas, had become the orthodox doctrine. But before it attained this position, a psychology of a different type had been cultivated. The Thomistic type flowed from the use of Aristotelian writings. But before the days of Aristotle's ascendancy the regnant influence was that of St. Augustine. The dominant psychology was based on St. Augustine's thorough dualism of body and soul, and inner experience, the inner life of the self-conscious individual, was the leading principle.[2] This Augustinian movement united with the empirical tendency of nominalism, and a psychology of introspective analysis was developed. But with the ascendancy of Aristotle, the gap between body and soul was apparently closed or veiled, and psychology was based on the peripatetic metaphysics. Perhaps it is not too much to say that it required the impact of the new movements in the sciences to reopen the gap for the reinstatement of the Augustinian position. But after all, the speciousness of the psychology worked out in Aristotelian terms did not wholly obscure the opposition of soul and body and various attempts were made to lend greater continuity by the interpolation of a *forma corporeitatis* (*spiritus physicus*), as a mediator between the pure form of the soul and the body. This insertion, repudiated by Aquinas, is urged by Duns Scotus. William of Occam follows Scotus in this.

As the two-substance theory became firmly intrenched, its effects were made manifest particularly in the theory of perception and imagination. The whole question of the nature and status of sense-qualities was forced to a revision.

This revision of the question is found even among the materialists. The materialistic conception of the soul, which Guizot somewhere asserts to have been the dominant idea in the first centuries of our era, was revised during Renaissance times along with the resurgence of the atomism of Democritus and Lucretius. The materialistic conception of the soul and the atomic theory had never wholly slipped from the attention of thinkers. The new interest in nature, however, caused these ideas to be congenial to some spirits. Thus to Telesius the soul was simply matter in its finest and most mobile state. The materialistic teaching was frequently disguised, for reasons prudential and sometimes perhaps sincerely religious, by the addition of an immortal and incorporeal soul. This *forma superaddita*, however, though advanced by such men as Telesius, Cardanus, and

[2] *Cf.* Windelband, *Geschichte der Philosophie*, par. 24.

Paracelsus, is not permitted to affect their psychology. It is in flagrant contradiction to the general tenor of their teaching, and in effect their psychology remains materialistic. The situation was glossed over by the conception of twofold truth. The materialists performed the service of renewing interest in physiological studies, and reviving the ancient notion of *pneuma,* made the theory of animal spirits the guide of physiology.[3] The materialistic—and physiological—explanation of sense and imagination was formulated in terms of this principle; and even among the dualists, as for example, Descartes, the notion is utilized.

But outside the circle of the materialists, a different situation arises. The pageantry of qualities that had covered nature was torn away and there remained only its bony quantitative framework. The problem is: what is to be done with secondary and tertiary sense-qualities? Since there are two worlds, and they are excluded from one of the two, the obvious answer is that they are in the other. Everything that mechanics and mathematics do not discover in nature must be in the human soul-substance. And much of philosophy since that time has consisted of a series of desperate assaults with the purpose of driving them out again.

William of Occam illustrates the movement. To him and his school qualities are merely signs of objective differences in things. His criticism of the *species intentionales* insists that "cognition is not the intussusception of an image (*species*) resembling the thing known, but an immanent act (*actus intelligendi*) which becomes the sign of the thing. Hence the *species intentionales* whether sensible or intellectual, is a useless fiction which should be banished."[4] Despite his addition of a *forma corporeitatis* and a sentient soul to the intellectual soul, the dualistic setting forces him to the subjectivity of qualities.

According to Windelband, the doctrine of the intellectuality of sense-qualities was a doctrine commanding many minds in Renaissance times. "Aus der skeptischen und der epikureischen Litteratur war die Lehre, dass Farben, Töne, Gerüche, Geschmäcke, Druck-, Wärme, und Tastqualitäten nicht wirkliche Eigenschaften der Dinge, sondern nur Zeichen für solche im Geiste seien, unter Widerholung der antiken Beispiele in die meisten Lehren der neueren Philosophie übergegangen. Vives, Montaigne, Sanchez, Campanella, waren darin einig."[5] Further, "Galilei, Hobbes, Descartes erneuerten die demokritische Lehre, dass diesen qualitativen Differenzen der Wahrnehmung in natura rerum nur quantitativen Unter-

[3] *Cf.* De Wulf, *History of Medieval Philosophy,* pp. 474–475.

[4] De Wulf, *op. cit.,* p. 424.

[5] *Geschichte der Philosophie,* par. 31.

schiede so entsprächen, dass jene die innere Vorstellungsweise für diese seien.''[6]

The status of sense and imagination forms the crucial problem. If we revert for a moment to the scholastic epistemology, we find one reason for this. With the reduction of the plurality of substances to a duality, many of the ideas concerning knowledge that were accompaniments of the older world-view persevere in the new setting. There had been two types of knowing: the first, direct apprehension of the essence, of the immaterial pure form, and this was perception of the highest kind, and an expression of the intellect's native energy: second, cognition dependent on the correspondence of the species in the mind to the form of the object, such knowledge of things being mediated by the *species intentionales*. In the dualistic world construction these modes of knowing are unequally affected. When the intellectual soul (pure form) became spiritual substance the notion of immaterial essences perdures, but receiving the connotations implied by the position of essences in the two-substance scheme. These essences, therefore, retained kinship with the spiritual thinking substance. In short, the power of directly apprehending and comprehending immaterial essences, or fundamental truths and axioms, such as mathematical and logical entities, continued to be the noblest function of the soul, the purest manifestation of its puissance. In knowing immaterial things and essences, entities indigenous to the spiritual world, the mind can proceed upon its own initiative, for its intrinsic and defining power is thinking, and the essences are congeners of thinking as a spiritual energy and enterprise.[7]

The dualistic setting, therefore, does not radically transform the nature and conditions of knowledge of this higher type; or at least it does not accomplish it until a much later stage. Such knowledge had long been aloof from the tissue of material events, and the dualism of substances perpetuates the tradition. But the case with knowledge through sense and imagination was different. We have seen this manifested in the common position that qualities were only signs of differences in things, while those differences were matters susceptible of mathematical and geometrical determination. The status of sense and imagination had to change, because, in the first place, the aspect of immateriality possessed by natural objects in virtue of their form had vanished; the progressive liberation of the form from its individualizing matter as the form, so to speak, ascended through sense to intellect, was abolished. Secondly, on the dualistic basis, all cognition had to take place in the one spiritual

[6] *Ibid.*

[7] Descartes's *Rules for the Direction of the Mind* affords abundant illustrations of this position, as the writer hopes to show in a later paper.

substance, while the object of the cognition was by definition a phenomenon in a wholly different substance. Now the essence of material things, their universal traits, might be known by the direct intuition of thought, the unmediated grasp of the immaterial entity; in this way might the concept of extended substance, the concept of the circle, and the like, be secured. But all further knowledge must depend on the acquisition of some acquaintance with the particular extended object. Such acquisition involved contact, and this contact was furnished by sense and imagination.

In the noonday of scholastic thought, the hierarchial arrangement of substances satisfied manifold needs. It was an elaborate metaphyics, but it was also more. The logical concatenation coincided with the ethical and religious ordering of values and worths. The implicit ideal of metaphysics was a logical deductive arrangement of essences which should fulfil the demands of religious beliefs and ethical conceptions and furnish a world-construction that would cohere with a theological and teleological plan of the universe, of life and history. Now the rational soul could comprehend the essences in their logical ordering. The source of this power of the intellect was its own nature; the rational soul is ideal in nature, akin to the essence, itself an essence in the series. Its power of directly apprehending the essence was conditioned by the limitations of human nature, its frailty, impurity, and the circumstances of bodily life. Conceding the handicap of these limitations, nevertheless, the rational soul was endued with this native underived ability to grasp immaterial entities. Since this capacity pertains to the rational soul as of its inmost nature, no further explanation of this capacity is desirable. To be a rational soul is to possess this power. Further explanation could only be theological allegory.

But knowledge of transient particular things depended on conditions of space and time and the operation of bodily organs. Sense and imagination were instruments of the rational soul, in one sense indispensable for such knowledge. The manner in which the rational soul through such help attained the universal essence could hardly be regarded as satisfactorily explained. For, after all, the rational soul could have profited little by its instruments were it not for the powers germane to the intellect itself. That is, sense and imagination were primarily occasions for the exercise of this essential capacity; the capacity itself was the real reason why the intellectual species could be represented as in some way generated from the sensible species. Indeed, the intellect was given its instruments because its temporary conjunction with the body brought it under the sway of material conditions; after its separation from body, ac-

cordingly, it could dispense with sense and imagination as means of knowing.

The thoughts of the rational soul's native capacity for apprehending immediately the essences, and of its dependence on sense and imagination for knowledge of particular existents, persevere in various guises in later thought. Along with them persists the related distinction between truths of reason and knowledge of fact. Thus in Descartes and other writers phrases like the "light of nature" and the "inner light" express this fundamental endowment of the soul; the meaning of innate ideas should be sought in this connection. Hobbes's contrast of truly scientific knowledge as knowledge from cause to effect with knowledge of opinion as knowledge from effect to cause is rooted in a scholastic view of deduction. His failure to explain how the understanding came into possession of the entities from which it started its deductive process is an omission of the same nature as the scholastic inability to account cogently for the intellect's acquisition of the essence. Throughout modern times a certain degree of mystery has shrouded the mind's ability to possess general ideas and universals, *a priori* truths and axioms. Is not this, with the distinction between truths of reason and empirical generalizations, rooted in the common medieval system?

Now with a dualistic fashion of envisaging the knowledge problem superseding that founded on the old hierarchical system, the efficacy of sense and imagination as instruments becomes still more unsettled. The native power of the mind, as spiritual substance, to apprehend the essences needs explanation just as little and just as much as it did in the earlier system. The soul is a congener of the essence and for this reason no mediating agency between it and the essences is requisite. Much preliminary work in the shape of ridding the mind of prejudices, illusions, and errors that becloud the inner light might be necessary, but in so far as this inner light shines the essences could be grasped without the intervention of another agency. The theological motives are absent and purposes are changed, but the conviction that the soul possesses an inner power equal to the task is the same. In the end the appeal is to the nature of the rational soul itself.

On the dualistic basis knowledge of mutable things, as before, depends on some form of contact. The proof of the serviceableness of sense and imagination is, however, baffling. Then too, the applicability of the essences to things in nature is problematic. The difficulties that had been smoothed over by the snug gradations of the matter-form scheme are now blatant. For knowledge of the world of spirit and the realm of general notions and essences the underived intuitive power of the soul is ample. The enlightened

mind perceives the truth and knows that it knows. But what is to be said concerning knowledge of the world of matter?

Through sense and imagination the two worlds are to be connected. But are they equal to the task? Sense and imagination, in so far as they are cognitive, should be spiritual powers, resident in the soul; in so far, however, as they are concerned with material things, and are, or involve, physiological operations and possess bodily "seats," they must be corporeal. The situation makes for ambiguity, and a certain ambiguity in the treatment of phenomena of sense and imagination is widely characteristic of the early stages of modern epistemology, if not indeed of all stages.

Two qualifications we find introduced here and there to save the situation, in appearance at least: first, the assumption of an interaction of the two substances on the occasion of knowing; secondly, the limiting of cognitive power to understanding alone, leaving sense and imagination as instruments and means in dealing with material things, but possessing in themselves no cognitive power. This latter point is of course simply the continuation of the scholastic tradition; but it can not long be maintained as the consequences of the dualism of substances are recognized. With these qualifications the mind may be said to know spiritual things because, when things affect the senses, an image is produced in the soul, or an act of immediate apprehension of the image is occasioned. This is, to be sure, hardly more than disguising the problem. Just how the spiritual principle apprehends a corporeal image is still a mystery. There is little difference, seemingly, between the soul's directly apprehending an extra-organic object and its apprehending an intra-organic image, phantasm, or excitation of animal spirits. Or if the operation of the object upon the senses occasions the appearance of an image in the soul, the image, it would appear, must be either a spiritual phenomenon and accordingly completely removed from the corporeal, or else it must be material and physiological, and its presence in the spiritual substance a paradox.

The real root of the anomalous situation is that the copy-character of the sense-phenomenon (such as was possessed by the sensible species) no longer exists, while knowledge is still examined as if it still rested, and could rest, upon the principle of correspondence which has been validated by the assumption of that copy-character. When potentiality and realization were the ruling conceptions (secondary and tertiary) qualities were assumed to be properties of the extra-organic object and the species of sense replicas thereof. But with the transference of qualities to the soul, or even to the organism, whatever other implications the transfer might, or might not,

have had for knowledge, the sense-phenomenon was certainly no longer a copy, or replica or reproduction of properties of the object. The demand for correspondence persisting, despite the change, sense and imagination must vibrate between two substances in order that theory might be accommodated both to the new notion of qualities and the old notion of the criterion for determining the veracity of cognition. One may perhaps be permitted to formulate the trouble dilemmatically: if that which occurs in sense-experience is a copy of the material extra-organic object, it is material, and there is no way of explaining how a spiritual cognitive principle can even use it as a means; or, if that which occurs in sense-experience is a spiritual event, the principle that like is known by like, is inapplicable and the veracity of alleged cognition can not be guaranteed by the test of correspondence.

Within the limits of this paper we can not illustrate these contentions by showing their appearance in the works of individuals, nor expound the various ways and degrees in which they were severally affected by the movements that have been described. The purpose of the foregoing fragmentary sketch is not to explain exhaustively the history of all tendencies of thought which defined the environs of modern philosophy at its inception, but to portray the growth of the set of ideas that in particular exercised authority over psychology and the epistemology built thereon. In the work of men so divergently minded as Descartes, Hobbes, and Locke are distinguishable traces of ideas, not generated by the subject-matter, but rather guides in the surveying of the subject-matter. These men and others were breaking with the past; but the break was never so uncompromising as the histories of philosophy often lead the reader to believe. Descartes may have cast aside the scholastic comfortable assurance of the certainty of knowledge; but his dualism was hardly an advance beyond medievalism. Hobbes, for all his discarding of spiritual soul, comparative neglect of the notion of substance and advocacy of the new natural sciences and mathematics, retains a view of the place of deduction that is essentially scholastic. Locke is willing to consider the possibility of a materialistic basis for the soul, but if there is a spiritual substance, has no doubt of interaction, and becomes rationalistic when a counterpoise to the inadequacy of correspondence is needed. In many ways early modern philosophies point back to the course of development that has been sketched, while pointing forward to a new psychology and a psychological epistemology.

A series of transmutations lie ahead. The attacks of Berkeley and Hume upon the notion of substance follow on Hobbes's repudi-

ation of spiritual substance and his practical unconcern with substances of any sort. The empirical tradition made short shrift of the concept of substance, but the victory was never complete. Eradicating the notion of substance may have made a psychology without a soul or a soul-substance possible; but the dissimilarity between thought and things, and body and soul, fostered by the dualism, is at bottom conserved when the soul-substance has been pulverized into mind-dust. Existence retained its irreducible duplicity. The theory of two substances yields to that of two series of states, mental phenomena and physical phenomena. The common expressions, *series of states of consciousness, stream of mental events, mental states,* or the Lockian *way of ideas,* represent in appearance only freedom from metaphysical bondage. In effect, the psychology of states of mind, with or without a soul, customarily opposes mental state to extra- or intra-organic stimulus, psychosis to neurosis, as effectively as a Descartes ever opposed soul and body. It is supposed that the investigation of the structure and functions of the nervous system will vastly advance psychology. It may be asserted that it has done so; but to that one might retort that it has been in spite of, and not on account of, the discontinuity between the subject-matters of the two sciences. It is hardly unfair to say that common practise in effect simply neglects the discontinuity whenever the discovery is made that a problem can be sufficiently disposed of through physiology. Reducing parallelism or interaction to the level of mere working hypotheses and the adoption of double aspect theories and the like do not seem to eliminate the distinction between the physical and the psychical for the epistemologist nor appreciably mitigate its divorce of thought from things, however much they may facilitate the work of the psychologist. The opposition of the two series operates as an assumption which defines the province and methods of psychology and posits problems for the epistemologist. As has been pointed out, the doctrine of the cognitive correspondence of idea and thing is represented by the correlation of the psychical state with a physical event outside the organism, the psychical states being treated as existences on their own account as much as the physical phenomenon external to the body. The psychical state is also correlated with the intra-organic neurological process; this is the sequel to the older theory of objects causally impressing the soul by means of the excitation of the nerves and animal spirits. The physiological theory, however, has been adapted to the dualistic basis, for to most investigators the possibility of a causal impression on the soul does not obtain, and the physiological process runs its course paralleled by, but not affecting, the mental state. The inter-

actionists, of course, may be regarded as the continuators of the theory that the soul is causally impressed by the agitation of the animal spirits.

This correlation, however, can not be taken to mean a correspondence based on similarity or reproduction by copying; for a mental state is what goes on in one world when something else goes on in a wholly different world. This must be true, at least, of the "appearances," however identical the mental process and the extra-organic or intra-organic process may be at bottom. The metaphysical theory that the physical and the psychical are aspects of one and the same process does not join together the physical and psychical states in a way that is helpful to the epistemologist who starts with these diverse and divorced appearances. If my percept of the typewriter is in consciousness and is mental and psychical, while the extra-organic source of sense-excitation (and the aroused brain-process) are "in appearance" the antithesis of the percept, the assurance that the two are at bottom identical, or aspects of one underlying process, or that one is merely an appearance of that basic reality of which the other is genuinely and organically a part—these assurances do not seem to ameliorate the awkwardness of the situation for the epistemologist. One might flippantly say that it puts him in the position of having to write a metaphysics in order to get a purchase for his epistemology because somebody else's metaphysics has injected into his world of discourse a duality that only another metaphysics can overcome.

The double-edged implication of terms illustrates the difficulties to be surmounted. Sensation, perception, and the image (especially the image) have a physiological meaning and a psychical meaning. They may refer to matters wholly unlike. This is the result of a science having a realm of data peculiarly its own, psychical existence as such, but apparently incapable of abiding in it.

Even in the rationalistic tradition, where the notion of substance continues to have more or less good standing, the objectionableness of a dualism of substances may lead to its repudiation without eliminating, for psychological purposes, and consequently for epistemological investigation, the world division. Whether the psychical and physical series be parallel without reciprocal influence; whether interaction takes place; whether the two series are aspects of a pristine one which is neither of the two series; whether one series is but the externalization of the other, or is related to it as an epiphenomenon; in any case, psychology as psychology does not seem to be helped very much; and the epistemologist's knowing subject and world known remain asunder. A *tief-eingehend* meta-

physics may attain such a resolution of the discord, but a mundane psychology must busy itself with the double series and remain, so far as one can observe, unconsoled by the assurance of the ultimate unity of its apparently dual subject-matter. Of course, such metaphysical quests may reintroduce the notion of the unitary substantial soul, but again this is of no concern to the psychologist, save, perhaps, as a relief when about to relinquish a problem as insoluble in terms of the two series.

The writer, it may be added, disclaims any intention of being impertinent to the psychologist. The only justification for this paper is that it may contribute somewhat to a clarification of the difficulties in which psychology and epistemology now seem to be involved, in the hope that whatever artificial and spurious elements the problems comprise may be discovered and weeded out. Psychology will doubtless be that which those who cultivate it decide that it should and must be. But the fate of epistemology appears to be intimately bound up with that of psychology. And if we validate the assumptions and point of view that historically has generally been characteristic of the psychological tradition, we are validating in some sense and degree a dualism of substances, or dual view of existence, and in its mildest form we leave a breach between mind and the natural world that is a persistent impediment to the epistemologist. That is, we are accepting a type of metaphysics in a subtly pervading form, very much as the scholastic looked out upon nature through metaphysical spectacles inherited from long-deceased ancestors. Taking courage, one might formulate the state of affairs as involving three alternatives: first, we may accept the olden dualistic type of psychology, and expect the perpetuation of all the epistemological tangles resting thereon; or a new kind of psychology may be given us, with the possibility of a reformulation of epistemological problems that will promise a measurable advance toward agreement and solution; or finally, as some hardy spirits do, we may declare that psychology and epistemology have nothing to do with one another, and be as serenely indifferent to the ways of the psychologist as the scientist is to the ways of the epistemologist.

For epistemological inquiry, the establishment of a dualism of substances or some view of existence as twofold as the foundation of psychology and thereby directly and indirectly of epistemology, has its immitigable effects. What, let us ask, has become of Aquinas's notion of the sensible and intellectual species as the means, not the object, of knowledge? Or Descartes's view of sense and imagination as instruments without cognitive value in themselves? Or of any view that assumes that we know things by way of ideas through the correspondence of the ideas with things?

Briefly, the answer must depend on the fact that these instruments and means, when existencee is split into halves, are either like the object of knowledge, and are therefore no longer functions of mind, but functions of the physical world, and as resident in that world, are part and parcel of the object of knowledge; or they are processes in the mind, and in no continuity with the object of knowledge. In neither case can their instrumental functions be retained unimpaired. If physical, they are not mental at all, and can play no part in knowing. If psychical and mental, they are, presumably, no more like the object than anything else mental, and their mediating power has departed. If sensations, percepts, and images are in and of the physical world, as wholly physiological processes, they are out of mind, and how they can be instruments of knowing is explicable only on the basis of gratuitous assumptions. If these terms have a double meaning, referring both to a psychical and a physiological process, the one is in mind, the other out of it, just as much as ever. But if the terms indicate a double process, can we maintain that they are still the means of knowing? Just how it can be done is not easy to see. Sense and imagination as physiological, if knowing is an antithetical psychical event, are simply in another world, as far removed from the genuine knowing process as any other events in the world of nature. But how about the psychical correlations? They have no likeness to things. If sensations, percepts, and images are psychical, and if knowledge depends on the correspondence of similars, no knowing of things is possible, for these psychical facts are like nothing else on earth but themselves. Furthermore, even assuming that every psychical event has its physiological (and physical) correlate in no wise helps, for this very assumed correlation shuts the subject up within the world of the psychical and the psychical correlates. Knowing must be confined to the psychical, all that can be known are the psychical representatives; the means and instruments, therefore, become the objects of knowledge. The representatives have no credentials. Or, if it be thought that they possess them, there is no way of verifying them, for the verifying mind can not step outside the psychical in order to assure itself that there was something at all to be represented, much less what is represented and how correct and constant the representation is. The assumption of a correlation must remain an assumption, though how we happen to make it is a mystery.

In short, sensations, percepts, and images, losing all likeness to, and continuity with, the physical events in whose existence we are constrained to believe, may be assumed to have a sign character, but

neither this nor the constancy and the unequivocalness of this character can be established by the test of correspondence without begging the question. The beginning and end of knowing is in the psychical, so long as the two-world view is consistently upheld, and a test for knowledge must be devised which involves no spanning of the gap between the two worlds. Properly speaking any test or criterion at all that relates knowledge to the extra-psychical will involve an assumption which can not be demonstrated. The dictum of Aquinas's must be changed: that which we know first, last, and all the time is our own psychical state. The sensible and intelligible species are all psychical, ideas in the mind, and knowing has to do with ideas.

The question to be put is this: If the historical development has been correctly outlined, and if psychology conserves the assumption or doctrine of two irreducible, unconnected worlds of existence, must not epistemology, when it utilizes that psychology, commit itself to just these difficulties? It may be asserted that history has proved that there are ways out; or at least that they have been suggested. But it is logically impossible to connect two things that by definition can not be connected. Is it not true that attempts to overcome these dualistic difficulties have either been evasions, appeals to metaphysics, inconsistencies, or finally the evoking of a different psychology? The occasionalist may refer to the activity of the deity for the solution of the problem, but this is hardly an epistemological answer to an epistemological problem. Indeed, many of the suggested ways out are metaphysical short-cuts. Thus a spiritualistic metaphysics by the affirmation of an essential identity of matter and mind; but so long as in the world of appearance the two spheres are diametrically opposed, it is doubtful if epistemology has profited. The distinction between primary and secondary qualities has been a suggested solution, but this in the end must signify either an outright inconsistency or a rejection of the dual view. The assumption of a Kantian unknown X, a necessary I-know-not-what, is a confession of failure, not a solution. Certainly, even the modern realist asserting that relativity to the organism does not involve relativity to consciousness, is breaking with the traditional psychology. The vexatious thing is that one can not eat one's cake and have it too—one can not break with the older psychology and continue to use it. And so impregnated have become language and common sense with the dualistic view that one finds oneself involved in it just when one is confident he has expelled it. Furthermore, the endeavor to reestablish the criterion of correspondence never quits the field, and the attempt is always prejudiced by a psychology that has no room for correspondence. Interaction between the

physical and the psychical does not seem to help matters in a sophisticated day as the interaction of body and mind on the occasion of knowing comforted Descartes. When sense-data, and all psychological processes, are regarded as completely mental, and added to this is the equivalence of the mental, the psychic, and the conscious; when knowing, start and terminus, is in this psychical world, and by common assumption whatever else there is (if there be anything else) is wholly alien to thought; then, surely, the choice is between subjectivism and despair. When we feel compelled to prove the existence of an external world, while the scientist and the man on the street alike assume its existence and take for granted some acquaintance with and knowledge of it, one can not resist the conclusion that there is something artificial and spurious in the problems generated by the dual view of existence.

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ESTIMATION OF CENTIDIURNAL PERIODS OF TIME: AN EXPERIMENTAL INVESTIGATION OF THE TIME SENSE

Problem and Conditions of the Experiment.—The aim of this investigation was to determine the accuracy and steadiness of judgment in estimating small portions of a day. The experiment was performed at Pittsburgh, December 27 to 29, 1917. Thirty-three subjects took part, all well trained in psychological observation; all but five were members of the American Psychological Association, through whose courtesy the names of the subjects with standard time assigned to each were printed and distributed before the experiment started. In addition to the subjects themselves about 75 persons assisted the experimenter in absorbing the sound waves.[1]

The conditions of the experiment were as follows: The subject was directed to stand up and talk without intermission during a stated interval of time. The choice of topic was left entirely to the option of the subject, and he was free to speak with or without notes, to read aloud, to illustrate by charts, chalk, *etc.* The period of time assigned was 15 minutes in case of 25 subjects, 10 minutes for 5 subjects, 5 minutes for 1 subject, while 2 were left free to choose their own period. It will be observed that the 15-minute

[1] The writer wishes cordially to thank his subjects, some of whom came from a considerable distance at great personal inconvenience to participate in the experiment; he wishes also to express special gratitude to his assistants for their faithful cooperation, without which the auditory shock might at times have disrupted the atmosphere and demobilized the investigation.

period is 1/96 part of a day, or 0.01041666. This can readily be reduced to the 1/100 part (0.01) required by the experiment by application of the Spearman foot-rule.

Results.—For the 25 subjects whose standard period was 15 minutes the average time was 23.23 minutes, M.V. 3.1415928; for the 5 with standard 10 minutes, average 14.92, M.V. 5.280; for standard 5 minutes, average 6, M.V. 0; for free reproduction, average 23.13, M.V. 1.917. The C.E.'s are + 8.23, + 4.92, + 1, and 0, respectively, or, reducing to proportional parts, 1.548, 1.492, 1.2, 1, for each of the four cases. It will be noted that those who were free to reproduce any period of time succeeded in reproducing it exactly. Of the others, in every case the period was exaggerated, but the longer periods were lengthened, not merely absolutely more, but *proportionately more,* than the shorter. This is clearly a confirmation of the speeding-up principle, or law of cumulative enthusiasm. The disparity between the 15-minute and 10-minute periods would be greater if we leave out of account one of the 10-minute subjects whose actual time was more than twice as long as that of the others, or 23.88 minutes, indicating some misinterpretation of the instructions.

Distraction.—The effect of distraction was tested as follows: At the end of 20 minutes an assistant, Y., seated behind the subject gave two faint taps on the table with a pencil; this signal was repeated somewhat more loudly at intervals of 2 minutes, the increase in intensity of the distraction following precisely the Weber-Fechner Law. This would have necessitated the use of a 250-gram dynamite detonation at the end of 40 minutes; fortunately, however, only one of the subjects came dangerously near this limit. The distraction effect was applied to 14 subjects, whose average time was 26.52 minutes, M.V. 2.1234, while that of normal subjects was 19.05, M.V. 4.111. In other words, the effect of distraction was to *lengthen the time* and increase the C.E., while it decreased the M.V. Calculating the distraction effect in dynes, it was found that had this disturbing sound been omitted, the average time of 13 of these 14 subjects would have been raised to 50 minutes precisely, *i. e.,* to the normal lecture period. It was impossible to make the correction for the fourteenth subject, whose *vis loquendi* was so great that without the distraction his period would have extended indefinitely, or at least till complete exhaustion.

Contrast and Habit.—The influence of contrast was investigated by alternating 15-minute and 5-minute periods. The results were entirely negative. The influence of earlier upon later subjects may be determined by comparing the average of the first ten with the last ten. These are 22.22 and 24.99, respectively. This was at first

thought to indicate a cumulative latency effect. It is more probably explained, however, by habituation. As the later subjects were present during the earlier experiments, they doubtless grew accustomed to the distraction signals and were less disturbed by them than the earlier subjects.

An even more striking effect of habit was observed in connection with the free judgments. The 2 subjects Th. and So. were allowed to select their own time absolutely without restriction. They might, *e. g.*, have spoken for three seconds or for three whole days. Had they come first in the list of subjects they would of course have spoken for exactly 50 minutes, the customary length of lecture periods. As a matter of fact, their average time (23.13 minutes) was almost exactly that of the average for the 15-minute group —nearer, in fact, than could be measured by any watch chosen at random from the entire group of observers. This indicates clearly the effect of habit upon the duration of laryngomotor processes.

Influence of Previous Training.—The effect of general training was brought out by comparing the judgments of members of the Association with those of non-members. The latter, while they were all well trained in laboratory technique, introspection, and general behavior, were considerably younger and less desiccated than the Association members. Contrary to expectation, it was found that the judgments of non-members were *more accurate and more steady* than those of members, the averages being 17.76 and 24.60 with M.V. of 2.468 and 4.321, respectively. Part of this difference may doubtless be accounted for by the deeper emotional effect of the distraction taps upon less sophisticated natures. But if we eliminate this by the method of least squares a difference of 3.33 still remains, which is 9.41 times the probable error. This forces us to the significant conclusion that *accurate appreciation of time diminishes directly with age and psychological training and inversely with the intelligence quotient I.Q.*

Influence of Stereokinesis.—An attempt to measure the influence of the distance traveled by various subjects upon their judgments brought out no significant correlation whatsoever. It is interesting, however, to note that the subject who had traveled the second furthest distance gave the shortest actual judgment of the 15-minute period, 15.02, while the subject who had traveled the shortest distance (excluding those from Pittsburgh itself) gave exactly twice this: 30.04.

Temperature.—The experimenter was able to test the influence of warmth and cold upon the time estimates by the following device, credit for which is due to the Pullman Company. The weather at the time of the investigation was unusually cold, but the research

rooms were well heated. At one session the experimenter arranged so that the steam heat was turned on full, while the doors and windows of the room were tightly closed. At the next session he turned off the steam and opened the windows wide thirty minutes before the experiment began. No significant difference appears in the average times of these two sessions. This is readily explained by the fact that in a cold room the natural heat of the speaker radiates out more freely, raising the temperature in his immediate vicinity far above that of the warm session. The temperature was measured by means of a clinical thermometer suspended by the Hipp on a knife-edge 2 mm. from the subject's right ear.

Topical Classification.—Since the subjects were free to choose their own topics of discourse, it was possible to compare the estimates of time based upon different classes of topics. The topics were classed as laboratory reports, theoretical discussions, mental tests, educational psychology, and nonsense syllables. It was at first proposed to dichotomize the papers into fact and fiction, but this proved impracticable, since most of them contained a certain modicum of each. On the basis finally selected the judgments range in the following order: theory 21.2 minutes, education 22.3, nonsense 23.4, tests 25.6, laboratory 27.8. Comparing the procedure with charts and procedure without charts, it was found that the explanation of charts *lengthened* the time by nearly 5 minutes (4.998). If this correction be made in the classification of topics it would reduce the time for explaining laboratory experiments by the above amount, making it the lowest of all, while it would not alter the time for describing tests, since in discussing tests charts must always be used or the topic reduces at once to the class of nonsense-syllables. The conclusion deduced from this is that laboratory experiments should be explained by auditory rather than visual presentation, while mental tests should be applied with no attempt at elucidation.

Control Experiments.—Our final step was to compare the subjects' estimate of time with the estimate by the experimenter and his assistants. Two methods were employed—introspection and behavior. In the first the procedure was simply to write down immediately after each speaker had finished the number of minutes the hearer judged had been consumed in the phonetic automatism. Besides the writer two assistants took part in these judgments—the only participants who were not biased by having acted as subjects themselves. The estimates of the three observers agree singularly with each other, but they deviate even further from the objective time than does the estimate of the subjects. Thus one paper, standard 10 minutes, reproduction time 17 minutes, was estimated by the

observers as 2 hours, 49 minutes, P.E. 35 minutes, while another paper, standard time 15 minutes, reproduction 28 minutes, was estimated at 13 minutes, P.E. 1.5 minutes. Evidently the estimate of the auditor is tremendously influenced by certain obscure physical factors, such as heaviness, brilliancy, sparkle, *etc.* These factors will be examined in a later investigation.

The behavior method consisted in noting the attitude of the audience as a whole, counting the number of yawns and snores, restless movements and furtive exits, reading irrelevant material, *etc.;* also by measuring the energy of wrist movements and the intensity of the compalmovibratory sounds at the end of each speech. The former manifestations correlate well with the introspective estimates; the latter do not correlate at all. It may be suggested that the latter disagreement is due to the fact that vigorous applause may either be generated by the content of a speech or it may be a conditioned reflex stimulated by relief at its termination. There is some question, however, whether this hedonic explanation is admissible in a behavioristic study. The salivary reflex and knee-jerk were not tested.

Summary.—The most important results from this investigation are: (1) The general tendency to *overestimate* the period. This correlates with the well-known observation that while married men do not actually live longer than single men, the time *seems* much longer to them. (2) The importance of *distraction* as a regulator of time appreciation. This confirms many observations which have demonstrated that the striking distraction afforded by an alarm-clock produces greater precision in building up temporal associations with an eight o'clock lecture or a six o'clock train. (3) The effect of *training.* While distraction increases the accuracy of estimation, practise decreases it. In particular, the habit of lecturing to young and naïve audiences tends to minimize conciseness and lucidity. In certain cases the best and perhaps the only sure corrective is the well-known apparatus designed in 1792 by Monsieur Guillotine. (4) Perhaps the most noteworthy fact brought out by our research is the tremendous disparity between a speaker's own estimate of time and that of his auditors. We may denote the subject's appreciation of the period by "Function *a*" (Fa), while the estimate made by his audience is represented by a constant (k) times the variable e. An exact measure of the performance as a whole is denoted symbolically by the expression $F.a.k.e.$

HARRY CARY

REVIEWS AND ABSTRACTS OF LITERATURE

Science française. Scolastique allemande. G. PAPILLAULT. Paris: Félix Alcan. 1917. Pp. 154.

This is a very interesting, and, in many respects, a valuable contribution to philosophical literature.

The author's aim is to trace to their sources the various streams of philosophical thought. These streams are roughly classified into three groups: English empiricism, French rationalism, and German idealism. In order to understand their full significance, we must go back to the dawn of modern thought, namely, to ancient Greece, whose philosophy has molded all subsequent thinking. We must study with special care the legitimate heirs of Greek thought, the medieval philosophers. There is sometimes found among intelligent people a widespread prejudice against medieval thought. It is believed that Descartes simply created modern thought. Bacon and Locke are hailed as the founders of modern empiricism. But this is a prejudice due to ignorance. Medieval philosophy is remarkable for its wealth of thought, and we must go back to it if we want to comprehend the modern systems.

The various streams of medieval thought can be divided into three groups, which correspond to the three great modern philosophical systems. English empiricism can be traced back to Roger Bacon. This remarkable thinker is indeed, as has often been remarked, the precursor of his namesake, Francis Bacon. He is also the precursor of Locke, Hume, and John Stuart Mill. He has laid the foundation of sensism, of empiricism, of individualism, and has expounded their fundamental principles most accurately. He is the father of English philosophy.

The century of Roger Bacon was also the century of St. Thomas Aquinas. St. Thomas was Descartes's favorite author and exercised a powerful influence upon his thought. In St. Thomas's philosophy can be found the key, not only of the *Discourse on Method,* but of all subsequent French rationalism. Is it St. Thomas, or is it Descartes, who wrote the following words: "What is natural to reason appears to us so necessarily true that we can not even think it to be untrue"?

Amid its riches of thought, scholasticism had, however, obsolete principles, devoid of true life, principles which constituted, as it were, the pathology of medieval philosophy. Following an evil propensity of the human mind, it converted concepts into real entities, regarded the species as an object having its unity, and converted empirical laws into active agents. The grammatical categories were supposed to apply to external events and to regulate the cosmos. By

the side of the great empiricists and rationalists, Roger Bacon and Thomas Aquinas, there were pseudo-philosophers and pseudo-scientists, Eckhart and Tauler, Suso and Boehme, who are the true ancestors of the great philosophers of modern Germany, of Kant and Hegel, of Schilling and Schopenhauer. Kant's philosophy is, therefore, a mere caricature of scholasticism, a parasitic growth, as it were, devoid of originality and absolutely worthless.

Attacks on German thinkers are so numerous nowadays that some readers will perhaps suppose this work to be a work of circumstance, devoid of permanent value. It is not so, however. The author, who is a professor in the School of Anthropology at Paris, was expounding the same view long before the war began. Moreover, the author's epistemological point of view is no less interesting than his opinions about the historical tradition.

The epistemological system, of course, is not entirely new. Levy-Brühl's words "*Tout est dit,*" apply to philosophy more than to any other branch of human knowledge. Papillault's system can be traced back to Pythagoras, whom the author mentions with reverence. But, whereas Pythagoras's thinking had come to us in isolated, difficult, second-hand fragments, we now see it before us in a living form, and we can form a clear conception of what a Pythagoras of the twentieth century would say and think.

The criterion of truth is to be found in the mathematical sciences, especially in arithmetic, the simplest and clearest among them. The unit is the prototype of the absolute monad dreamed by metaphysicians. It belongs to the genus number, of which the particular numbers are the species, the nature and value of which are perfectly known according to its place in the series. Numerical concepts are thus perfect concepts, to which all other concepts must be reduced in order to be understood. And the author analyzes accordingly the concept of cause, showing at the same time the superficial character of the analyses previously made by Hume, Karl Pearson, and other English empiricists.

The book deserves to be read by all lovers of philosophy.

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A Defence of Idealism. MAY SINCLAIR. New York: The Macmillan Company. 1917. Pp. xvii + 355.

This "Apology for Idealistic Monism" is written on the theory that a strong attack is the best defence, at least for a philosophy that is "in process of being bowled out." In a rapid-fire review of Samuel Butler, Bergson, McDougall, James, and Schiller, the new real-

ism and the "new mysticism," the author undertakes to show how contradictions and dilemmas follow in the wake of pluralism. The discussion is uniformly good-natured and vivacious. Miss Sinclair follows her literary instincts in writing the book, and insists upon being interesting. To this end she adopts a conversational and informal style. To illustrate: "So simple and direct and clear is Mr. McDougall that he puts a pistol to our heads and presents us with two alternatives and two alone" (p. 74). Again: "There can be no question of a kick in the ribs dwelling to all eternity in the bosom of the Absolute; because, for the new realist, there is no Absolute and no bosom" (p. 224). If the style is informal the design of the book as a whole is not less so. The author "follows the lead of the subject-matter," with no attempt at systematic exposition, her aim being primarily critical rather than constructive.

Miss Sinclair's idealism is difficult to comprehend, because it is so largely defined in negatives. Although she asserts that "the method of philosophy should be purely logical" (p. xi), she believes that "the monist's only chance is to abandon his epistemology; even if the alternative has to bear the dreadful and dishonored name of spiritualism" (p. 211). Miss Sinclair seems to mean by "epistemology" an abstract mode of dealing with thought and thought-relations. The idealist, she says, "can not conjure the universe out of such feeble propositions as that thought is unity and unity is thought" (p. 211). "To say that 'Thought thinks itself' is not enough. From the unsubstantial forms of its own thinking it can build no bridge from its own world to the world where things are and are done. But spirit can be supposed to do things. He [the monist] can define it as that which thinks, and wills, and energizes in one undivided act" (p. 297). Miss Sinclair's idealism is, therefore, monistic and concrete. Little more can be said about it. Why she should speak of it as the "new" idealism is not clear. It might be added that in spite of the author's determination to desert "epistemology" she frequently lapses into abstractness.

Because the method of the new realism is logical, Miss Sinclair believes it to be idealism's strongest opponent. "The chances are that it is neither pragmatism nor humanism, but the new realism that will succeed in establishing itself as the dominant philosophy of the twentieth century" (p. 297). The longest chapter in the book is devoted to a study of the new realism, with special reference to the work of Russell. "Pragmatism and humanism," as presented by James and Schiller, are criticized at length. Dewey is overlooked. Bergson receives special attention in the chapter on "Vitalism." The remaining chapters, devoted to various topics, are more interest-

ing than important. In the final chapter, "Conclusions," an attempt is made to sum up the argument, and show how it bears on the problem of immortality.

As *A Defence of Idealism* Miss Sinclair's book must be called a failure. She gives neo-Hegelian idealism over to the enemy without any attempt at defence, while the "new idealism" which she advocates had no enemies at the time when the volume was written. "A Defence of Monism" might be a better title. As a criticism of certain contemporary tendencies in philosophy the work has considerable merit, and it will no doubt be welcomed as a contribution to current discussions.

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JOURNALS AND NEW BOOKS

REVISTA DE FILOSOFIA. November, 1917. *Fantasmas de la selva misionera* (pp. 329–340): J. B. AMBROSETTI. – A collection of legends in vogue among Paraguayan Indians. *Noción de Dios y noción de espacio* (pp. 342–345): FLORENTINO AMEGHINO. – The only immaterial infinite is space. The notion of God is a childish notion, born when man was still in a savage condition and which is now disappearing in the light of civilization. *Los valores morales de Ameghino* (pp. 345–352): VICTOR MERCANTO. – Ameghino devoted his whole life to the advancement of science in Argentina and is a model for the new generation. *El desenvolvimiento social hispano-americano* (pp. 353–475): ERNESTO QUESADA. – A very important study of the civilization of American Indians. *Interpretaciones nuevas de la filosofia judía* (pp. 476–484): F. I. LARIOS. – A critical study of Nima Hirshensohn Adlerblum's work "A Reinterpretation of Jewish Philosophy." *Influencias de Lamennias durante la emigración argentina* (pp. 485–493): JOSÉ INGENIEROS. – Lamennais had an immense influence in Argentina during the second half of the past century. From the school of Lamennais, the Catholic, came Felix Frias; from the school of Lamennais, the free-thinker, came Francisco Bilbao.

Whitehead, A. N. The Organization of Thought, Educational and Scientific. Philadelphia: J. B. Lippincott Co. 1917. Pp. 228. $2.00.

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De Sarlo, Francesco. Psicologia e Filosofia: Studi e Ricerche. Volume Primo. Firenze: La "Cultura Filosofica." 1918. Pp. 546. 12 lire.

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NOTES AND NEWS

THE JOURNAL OF PHILOSOPHY has much pleasure in circulating the following letter from the editor of the *Revue de Métaphysique et de Morale*. Since that periodical began its career it has been a model of what a philosophical periodical should strive to be; it has set a standard of humane scholarship and scientific competence that has earned the gratitude of readers everywhere. The invitation to cooperate in the work of making philosophy an elastic and effective instrument of disciplined vision and intelligence is one to which students of philosophy here can not possibly be indifferent.

More and more human values are coming to be recognized as the ultimate subject-matter of philosophy, values which have to be pursued along the path of one social ideal or another. The clarification of democracy as an ideal and as a purpose demands the best there is in us, and the opportunity offered by the *Revue de Métaphysique et de Morale* to speak directly to all its readers will, we trust, meet with a response gratifying to all friends of philosophy in both democracies.

"Now that the United States has placed herself by the side of France, that she might seal with her blood the compact of our long-standing friendship and affirm the community of our ideals, it would seem that the thinking men of the two countries have also a mutual mission and duty to fulfil. *La Revue de Métaphysique et de Morale* is moved by the desire to play its part so far as possible in bringing these men to the consciousness of this duty.

"The events of these last months have revealed to every one the fact that peoples are bound together by something more than the possession of common interests. They are united by sentiments and principles. Materialistic realism, whatsoever guise it may assume, has proved itself deficient. To the question which our poet Vigny asked, not long ago:

> " . . . Si les nations sont des femmes guidées
> Par les étoiles d'or des divines idées?"

America has answered by the mouth of her statesmen in the same way that she had already answered by that of her thinkers and poets; for

was it not one of the latter who, as we were recently reminded at l' *Institut de France,* gave the idealistic counsel, "Hitch your wagon to a star"?

"It belongs to our philosophers, while trying to define and strengthen the ideals which serve as motives to our two peoples, to make apparent at the same time our essential affinities, and to render more evident and more lasting our brotherhood in all that for which, as nations, we live and fight.

"During these last few years the increasing intellectual communion, due to the coming of certain of your most noted professors to our universities, and the crossing of the Atlantic in turn by some of our greater literary men and teachers, has most effectively advanced our mutual understanding of each other. In the realm of speculation, notably, your William James has become as familiar to our students as one of our own, whilst you, on your side, have given a generous welcome to the teachings of Renouvier, Boutroux and Bergson.

"It is desirable now, and will be still more desirable in the future, that all those who, in America and in France, have been working for the eternal interests of humanity should not only maintain but also knit closer these intellectual relations, which will mean as much to the two countries as do our common battle-fields. It will be to our mutual profit so to do.

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"The *Revue de Métaphysique et de Morale* which, for the twenty-five years of its existence, has, in some measure, encouraged the practise of profound speculation and which has thereby played a part in the evolution of the philosophy of our time, is anxious to facilitate, and, if possible, to help organize an interchange of thought between

the two continents. Above all, the *Revue* would be glad to open its columns to the authorized representatives of American thought; it desires that the names of some of its new allies and friends of the present and future should figure among its contributors; and it would be glad to find readers among university students and in the more cultured circles of America.

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MR. WALLACE CRAIG, University of Maine, Orono, Me., in connection with his research work, finds urgent need for a copy of Ehrenfels, *System der Werttheorie,* and will deem it a great favor if someone will sell him a copy. He would be glad of an opportunity to buy also other works on the psychology of value, as, those of Brentano, Kraus, Meinong, Schwartz, Simmel, and Band III. of Wundt's *Grundzüge der Physiologischen Psychologie.*

THE University of California has issued an attractive announcement of the publications which have been prepared in commemoration of the semi-centennial of the University. The pamphlet contains sixty-eight titles, classified under the headings, Philosophy, History, Literature and Language, Mathematics and Science. Of particular interest to readers of the JOURNAL are the following:

Footnotes to Formal Logic: Charles Henry Rieber.
Fugitive Essays: Josiah Royce. Edited with an Introduction by Jacob Loewenberg.
Idealism and the Modern Age: George Plimpton Adams.
The Idealism of Kant's Successors: Josiah Royce.
A Survey of Symbolic Logic: Clarence Irving Lewis.

HAROLD ERNEST BURTT has been appointed instructor in psychology at Harvard University.

The Journal of Philosophy Psychology and Scientific Methods

There is no similar journal in the field of scientific philosophy. It is issued fortnightly and permits the quick publication of short contributions, prompt reviews, and timely discussions. The contents of the last five issues are as follows:

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